Assessing Preferences of Individuals With Developmental Disabilities: A Survey of Current Practices
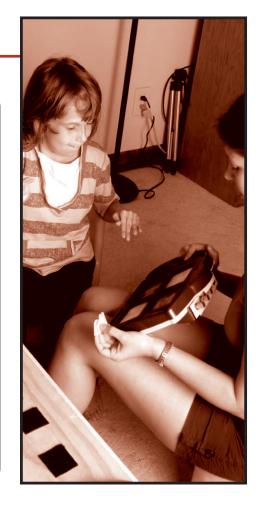
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ABSTRACT

Although professionals working with individuals with developmental disabilities have much to gain from using systematic methods of reinforcer identification, practitioner knowledge and use of stimulus preference assessments (SPA) has rarely been examined. The purpose of this survey was to assess awareness and implementation of SPAs among professionals who serve people with developmental disabilities within and outside the field of applied behavior analysis. A total of 406 individuals responded to the survey; 246 respondents were recruited via direct email, and 160 respondents were recruited from Internet postings. Fewer than 60% of respondents across all disciplines (i.e., applied behavior analysis, psychology, and special education) reported knowledge of the term stimulus preference assessment. While nearly 90% of behavior analysts reported using at least one direct method of SPA (i.e., an assessment involving direct observation and measurement of behavior), many reported personal lack of knowledge (18.6%) and lack of time (81.4%) as barriers to conducting these assessments on a regular basis. Survey results are discussed in terms of (1) the need for greater awareness and acceptance of reinforcer identification methods among behavior analysts, educators, and other service providers and (2) barrier-specific solutions to potentially increase the regularity of SPA usage in the education and treatment of individuals with developmental disabilities.

Keywords: Board Certified Behavior Analysts, reinforcer identification, special education, stimulus preference assessments, survey

The discipline of applied behavior analysis (ABA) involves the systematic application of basic principles of behavior to a range of socially important issues, including the education and treatment of individuals with developmental disabilities. Behavior analysts have applied principles of reinforcement to teach individuals with developmental disabilities language skills (e.g., Bourret, Vollmer, & Rapp, 2004), social interaction skills (e.g., Krantz & McClannahan, 1998), play skills (e.g., MacDonald, Sacramone, Mansfield, Wiltz, & Ahearn, 2009), community safety skills (Page, Iwata, & Neef, 1976), personal hygiene skills (e.g., Swain, Allard, & Holborn, 1982), and vocational skills (e.g., Lattimore, Parsons, & Reid, 2006). In addition, techniques based upon the principles of behavior have proven invaluable in the assessment and treatment of problem behaviors such as self-injury (e.g., Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994), aggression (e.g., DeLeon, Fisher, Herman, & Crosland, 2000), stereotypy (e.g., Ahearn, Clark, MacDonald, & Chung, 2007), noncompliance (e.g., Mace et al., 1988), food refusal (e.g., Gulotta, Piazza, Patel, & Layer, (2005), and property destruction (e.g., Fisher, Adelinis, Thompson, Worsdell, & Zarcone, 1998). Programs designed to teach new skills and reduce problem behavior differ along several dimensions, but all require the identification of effective reinforcers and the effective application of principles of reinforcement.

Early attempts to identify preferred stimuli (i.e., an item that an individual chooses to engage with that *may* function as a reinforcer) involved indirect (i.e., informant) assessments, such as the use of staff or parent report or checklists. Surveys have been widely used to generate inventories of potential reinforcers for many different populations, including children with special needs (Dewhurst & Cautela, 1980), children in inpatient psychiatric units (Jones, Mandler-Provin, Latkowski, & McMahon, 1988), adults suffering from alcoholism (Keehn, Bloomfield, & Hug, 1980), individuals with severe chronic mental illness (e.g., Lecomte, Liberman, & Wallace, 2000), and geriatric patients (e.g., Houlihan, Rodriguez, Levine, & Kloeckl, 1990).

Researchers have also developed a rich technology of direct assessments (i.e., assessments based on direct observation) for reinforcer identification. Research on these stimulus preference assessments (SPA) has demonstrated that reinforcers can be identified by presenting stimuli

Table 1. Commonly Used SPAs

Name of Assessment (Citation)	Description of Assessment
Single-stimulus (SS) (Pace et al., 1985)	Across a series of trials, stimuli are presented one at a time. Approach responses (e.g., moving hand or body toward the item) are recorded. Preference hierarchies are established by calculating the percentage of approach responses per stimulus.
Paired-stimulus (PS) (Fisher et al., 1992)	Across a series of trials, stimuli are presented two at a time; individuals can approach (i.e., select) only one item on a trial. Approach responses are recorded. Preference hierarchies are established by calculating the percentage of approach responses per stimulus.
Multiple-stimulus-without-replacement (MSWO) (DeLeon & Iwata, 1996)	At the start of each session, multiple stimuli are placed in front of the individual, who can select one. Approach responses are recorded. The selected item is not replaced, and the positions of the remaining stimuli are changed. Then, the individual selects from the remaining items. Continue in this manner until all items have been selected or the individual stops selecting items. Typically, several sessions are conducted. Preference hierarchies are established by calculating the percentage of approach responses per stimulus across all sessions.
Brief Free Operant (FO) (Roane et al., 1998)	Multiple stimuli are placed on a tabletop, and participants are free to engage with any of the items for 5 min. Duration of engagement with each object (e.g., manipulating objects) is measured. Preference hierarchies are established by ranking items according to the duration of object manipulation for each stimulus.

singly, in pairs, or in groups, and directly measuring approach responses or duration of engagement with each item (see Table 1 for a brief summary of some commonly used procedures; also, see Hagopian, Long, & Rush, 2004, and Tullis et al., 2011, for reviews of the preference assessment literature).

Although researchers have demonstrated that this diverse array of indirect and direct assessment methods can help practitioners identify reinforcers for their clients, some behavior analysts have more closely examined the degree of correlation between results of indirect and direct assessments. Green et al. (1988) assessed whether asking caregivers about child preferences would identify reinforcers as effectively as a direct SPA. The authors found that "high preference" stimuli, whether identified by staff survey or single-stimulus preference assessments (Pace, Ivancic, Edwards, Iwata, & Page, 1985), typically functioned as reinforcers. Stimuli identified as "low preference" by the direct assessment did not generally function as reinforcers, regardless of their classification by the indirect assessment. Other researchers have demonstrated that caregiver reports may not correlate perfectly with observation-based measures of preference, and that conducting direct SPAs increases the likelihood of identifying the most potent reinforcer (e.g., Cote, Thompson, Hanley, & McKerchar, 2007). Caregiver opinions are ideally coupled with direct SPAs to identify the

most potent reinforcers for a particular client (Cote et al.), and asking caregivers to identify potential reinforcers is an effective way to select stimuli for subsequent SPAs (e.g., Fisher, Piazza, Bowman, & Amari, 1996).

The conceptual and empirical basis for selecting reinforcers based on a combination of direct and indirect SPAs seems clear. Recommendations regarding how often and the conditions under which preference assessments should be conducted in order to gain the most informative and valid information, however, are not readily available, and the extent to which practitioners in applied settings use SPAs on a regular basis has not been examined.

The purpose of the current survey was to determine the degree to which SPAs and other methods of reinforcer identification are implemented in agencies serving individuals with developmental disabilities and to assess potential barriers to the use of SPAs. Although surveys are inherently subjective in nature, they have the capacity to provide information related to current practices, and to identify opportunities for improved training and dissemination. We assessed factors correlated with higher preference assessment usage (e.g., terminal degree, discipline in which respondents received their degree, employment setting, and certification status) to determine the range of professionals who might benefit from training in SPAs.

Method

Participants

Two methods were used to recruit survey participants. Both methods involved nonprobability sampling (i.e., certain members of the population had no possibility of responding), and both were considered "convenience samples" (i.e., the researcher samples individuals that are easily accessible rather than attempting to recruit a random sample from the entire population of interest; Fowler, 1984). First, invitations to participate in the survey were sent to 733 professionals via email. Recipients of the invitation were employed either by public schools or private programs serving individuals with autism and other special needs. Experimenters obtained 373 email addresses from the mailing list of persons who attended a regional behavior analysis conference in October 2009. In addition, the first author obtained 360 email addresses by conducting an Internet search of public schools and private agencies in Massachusetts. In total, email invitations were sent to individuals from 38 different school districts and 30 private agencies in Massachusetts. The process of recruitment using individual email addresses allowed the experimenters to calculate the return rate for a large proportion of respondents.

The second method of participant recruitment involved posting a survey link on 13 listservs (e.g., *PSYCH-DD*) and discussion groups (e.g., *Autism and ABA, Autism in the Classroom*) related to the education and treatment of children with autism and other developmental disabilities. A complete list of the included listservs and groups is available by request from the first author. Although Internet postings yielded 160 responses, the total number of individuals who viewed the link is unknown. Thus, return rate could not be calculated for this subset of respondents.

As an incentive to complete the survey, all respondents had the option of providing an email address that would automatically enter them into a raffle. A $50 gift card was awarded to two randomly selected respondents at the conclusion of the survey access period.

Materials

The preference assessment survey was hosted by SurveyMonkey®. After invitations to participate were distributed, participants could access the survey for 2 months. The survey contained a brief cover letter that described its purpose and indicated that the survey could be completed in 10 min or less. The survey (available by request from the first author) consisted of 16 multiple-choice and open-ended questions covering basic demographic information of the respondents, the size and type of agency in which they worked, the population they served, how often they assessed client preferences, known methods of preference assessment, and perceived barriers to the use of preference assessments. Survey questions were presented one at a time in a predetermined order. Participants could choose not to answer any question, but they could not revisit questions after advancing in the survey.

Response Measurement and Data Analysis

The return rate for participants who received the direct email was calculated based on the number of individuals who returned the survey divided by the total number of individuals on the mailing list. The return rate for surveys distributed via listserv could not be calculated. However, the number of listservs where the invitation was posted and the total number of respondents to listerv-linked surveys are reported.

Data from listserv postings and direct emails were aggregated for the final analysis of results. The percentage of individuals who selected each response option was calculated for every multiple-choice question. For some questions, totals exceed 100% because respondents could select more than one response option. Responses to the open-ended questions were also reviewed by the first author, and general themes or patterns are reported. Open-ended questions about the purpose and definition of SPAs were presented first in the survey, so it was not possible for participants to gain information regarding SPAs from later, close-ended questions.

Differences in overall SPA usage (e.g., method of assessments, frequency of assessments) were analyzed according to several variables: certification status (certified behavior analyst vs. noncertified respondent), occupational setting (public school vs. other settings), and the discipline in which the respondent earned his or her degree (behavior analysis vs. psychology vs. special education).

Results and Discussion

A total of 406 individuals responded to the survey. Of these, 246 respondents were recruited via direct email (a 34% return rate) and 160 respondents were recruited from Internet postings. The number of direct emails received by prospective respondents who did not ultimately complete the survey is unknown. However, a 34% return rate for the direct email survey is comparable to return rates from other published, electronic surveys. For example, one meta-analysis identified a 39.6% mean return rate from 68 surveys published in 49 different studies (Cook, Heath, & Thompson, 2000). Another meta-analysis yielded a mean return rate of 36.8% from 31 surveys (Sheehan, 2001). A higher return rate in the current investigation would have increased confidence that respondents were representative of all individuals who received the survey via direct email. However, low return rates are not necessarily correlated with sampling error (e.g., Fowler, 1984; Groves, 2006). Also, Martella, Nelson, and Marchand-Martella (1999) suggested that electronic surveys are significantly more likely to draw respondents with an interest in the subject matter. Thus, given a bias in the pool of respondents, it is most likely that the true percentage of individuals who use SPAs was overestimated by the results of the survey.

Table 2. Categories of Stimuli Most Frequently Delivered, by Certification Status

Category of Item Used	Percentage of All Responses	Percentage of Responses: BCBA/BCaBA	Percentage of Responses: Non-BCBA/BCaBA
Social praise/attention (tickles, high-fives, etc.)	91.5	94.4	90.0
Tokens/Points	65.6	81.3	57.6
Breaks from work	65.0	77.6	58.6
Edibles	50.2	69.2	40.5
Toys	49.0	71.0	37.6
Independent free play	49.0	59.8	43.3
Access to physical activities (e.g., running, sports, playground)	37.5	42.1	35.6
Sensory items (e.g., theraband, theraputty, muscle massager, fan)	33.8	43.0	29.0
Community-based activities	19.2	21.5	18.1

Table 3. Types of SPA Training Received

	Percentage of Responses				
	I have never received training on SPAs	Topic addressed during In-service training	Topic addressed during college coursework	I attended a workshop on SPA	I have independently read published manuals or research articles
All Respondents	49.5	18.5	20.7	11.8	26.6
Certified behavior analysts	13.5	37.5	66.3	21.1	47.7
Non-certified educators and practitioners	66.0	20.3	16.0	3.3	18.0
Individuals with a degree in behavior analysis	14.4	35.1	71.6	21.6	47.3
Individuals with a degree in psychology	23.6	45.5	45.5	14.6	45.5
Individuals with a degree in special education	52.3	27.5	27.5	12.8	26.6

General Demographic Information

Eight questions on the survey were designed to collect demographic information from respondents. Fifty-seven percent of respondents indicated that they worked in public schools, whereas 43% worked in other settings (residential treatment centers, 17%; home-based programs, 13%; day school programs, 8%; and early intervention programs, 5%). Respondents reported working with individuals with a wide variety of diagnoses, including autism (83%), pervasive developmental disorder (57%), learning disorders (56%), attention deficit disorder or attention-deficit/hyperactivity disorder (53%), and intellectual disability (50%).

Thirty-two percent of respondents were either Board Certified Behavior Analysts (BCBAs) or Board Certified Assistant Behavior Analysts (BCaBAs), whereas 68% were not certified in behavior analysis. Five percent of respondents held a high school diploma as their highest degree achieved. The remaining respondents completed their education at the following levels: 20% had a bachelor's degree, 64% had a master's degree, and 11% held a Ph.D., Psy.D., or Ed.D. Data on respondents' degree areas indicated that the most common areas of study included special education (43%), general education (30%), behavior analysis (27%), psychology (22%), liberal arts (8%), speech/language pathology (4%), social work (3%), occupational or physical therapy (3%), and communication disorders (1%). Results for degree area total more than 100% because some respondents held multiple degrees. The majority of respondents described their current occupation as "special educator" (27%), "behavior analyst" (23%), or "teacher" (15%).

Use of Reinforcement Procedures

All respondents reported using at least one category of items as reinforcers (e.g., edibles, community outings; see Table 2). The vast majority of respondents reported using several different categories of potential reinforcers. The most commonly delivered consequence was social praise or attention (used by 94% of BCBA/BCaBAs, and 90% of noncertified respondents). Respondents certified in behavior analysis were much more likely than noncertified respondents to use tokens/points (81% vs. 58%), breaks from work (78% vs. 59%), toys (71% vs. 38%), and edibles (69% vs. 41%). The practice of ABA has sometimes been described as overly reliant on edible reinforcers to motivate people with disabilities (e.g., Rudy, 2009). Results of the current survey, however, suggest that social attention, tokens, and breaks from work are the reinforcers most commonly delivered by behavior analysts. Practitioners may find this information useful to counter claims about the exclusive use of edibles in ABA.

Knowledge of SPA Procedures

The first open-ended questions asked participants to describe the purpose of conducting SPAs. Although participant responses varied a great deal, 33% of respondents referred to identifying *reinforcers, potential reinforcers,* or *rewards,* or indicated that items identified by SPA would be used to *change* or *increase behavior.* Sixteen percent of respondents indicated that SPAs are used to identify items to *motivate* individuals. Twelve percent of respondents indicated that preference assessments are useful to identify *preferences.* Six percent of individuals explicitly stated that they did not know, and another 5% provided answers that were clearly inaccurate (e.g., "It is an assessment to identify the funding needs of a student."). Twenty-seven percent of respondents did not provide an answer to this survey item. Although results suggest the majority of respondents had some knowledge of the purpose of SPAs, it should be noted that the invitation to participate mentioned identification of preferences in individuals with intellectual disabilities. Several respondents referenced this in their responses (e.g., "From the email I am assuming it is a test to see what motivates a person;" "A guess based upon your Internet posting: to assess what types of stimulation an individual might find rewarding?"). If anything, these responses suggest that results for the survey item in question may overestimate practitioner knowledge of SPAs.

Several survey items assessed the degree to which participants were familiar with terms and procedures associated with SPAs. Fifty-nine percent of respondents indicated they had heard the term "stimulus preference assessment" in the past, whereas 41% were not familiar with the term. Ninety-four percent of BCBAs/ BCaBAs knew the term compared to only 45% of noncertified respondents. This finding may be due to the fact that SPAs were primarily developed by behavior analysts (e.g., Fisher et al. 1992; Pace et al., 1985) and many published studies on SPAs appear in behavior-analytic journals. Over 90% of individuals who received a college or graduate degree in behavior analysis knew the term, as did 86% of respondents with a degree in psychology. However, only 60% of respondents with a degree in special education and 53% of individuals working in public schools were familiar with the term "stimulus preference assessment."

Training of SPAs

Half of all respondents reported they were never trained to conduct SPAs (see Table 3). Of those who did report a history of training, 27% independently read published studies or training manuals, 21% encountered the topic during coursework, 19% attended an in-service training, and 12% attended a workshop on conducting SPAs. Most certified behavior analysts (87%) received some training on conducting SPAs, typically as a part of their college-level coursework. Only 34% of respondents who were not certified in behavior analysis received training on SPAs. The discipline in which respondents received their highest degree was also differentially correlated with past training experiences. Respondents with a degree in behavior analysis were more likely to receive training on SPAs (86%) than individuals with a degree in psychology (76%) or special education (48%).

The Behavior Analyst Certification Board (BACB) Task List (3rd ed.) specifies that behavior analysts should have

Method	Percentage of All Respondents	Percentage of BCBAs/BCaBAs	Percentage of non-BCBAs/BCaBAs
Percentage who reported using at least one indirect preference assessment method	100	100	100
Informally observing the individual	88.3	84.3	89.7
Asking parents/caregivers what the individual likes	82.4	83.3	82.2
Informally asking the individual what he/she likes	75.6	73.1	77.1
Formal (i.e., published) parent/caregiver survey	36.5	42.6	33.2
Percentage who reported using at least one direct (i.e., published approach-based or free operant) preference assessment method*	51.6	88.9	34.2
Paired stimulus	36.4	70.4	19.2
Multiple stimulus with replacement	22.8	34.3	18.2
Pictorial paired stimulus	22.8	30.6	19.2
Free operant	19.8	34.3	12.6
Single stimulus	14.8	26.9	8.9
Verbal paired stimulus	13.0	21.3	8.9
Multiple-stimulus without replacement	9.9	20.4	4.2

*Each respondent could select multiple preference assessment methods.

knowledge of how to identify reinforcers, but 30% of behavior analysts reported that SPAs were not covered in their graduate coursework. One recent study surveyed professionals in the field of applied behavior analysis to identify important topics for an undergraduate distance-learning program in ABA (Sulzer-Aaroff, Fleming, Tupa, Bass, & Hamad, 2008). Although respondents rated "reinforcement" as one of the most critical topics for the curriculum, SPAs were not included as a response option on the survey. Future studies should examine curricular content across behavior analysis training programs to assess the extent to which SPA procedures, and other vital and broadly applicable technologies, are covered. It would also be useful to survey curricula from other fields (e.g., special education, psychology), since few respondents with degrees in other disciplines reported training in SPAs.

Given the importance of identifying reinforcers for people with developmental disabilities and the self-reported lack of SPA knowledge among behavior analysts and other professionals, it seems necessary for training and continuing education programs to improve their coverage of reinforcer identification, as well as the strengths and limitations of a greater range of indirect and direct SPA methods (e.g., caregiver interview, brief SPA, pictorial SPA). Practicing behavior analysts with expertise in SPAs should assess awareness of these procedures

Table 5. Types of Assessment Procedure Used, by Degree

Method	Respondents With a Degree in Behavior Analysis	Respondents With a Degree in Psychology	Respondents With a Degree in Special Education
Percentage who reported using only indirect preference assessment methods	11.5	22.7	55.5
Percentage who reported using at least one indirect preference assessment method	100	100	100
Informally observing the individual	75.3	70.7	78.8
Asking parents/caregivers/ significant others what the individual likes	81.8	87.9	90.3
Informally asking the individual what he/she likes	84.4	87.9	83.1
Formal (i.e., published) parent/caregiver survey	48.1	46.6	35.4
Percentage who reported using at least one direct preference assessment method	88.5	77.3	44.5
Paired stimulus	76.6	34.5	19.5
Multiple stimulus with replacement	29.9	22.4	12.4
Pictorial paired stimulus	36.4	56.9	27.4
Free operant	33.8	36.2	22.1
Single stimulus	23.4	10.3	8.8
Verbal paired stimulus	22.1	15.5	11.5
Multiple stimulus without replacement	37.7	27.6	21.2

*Each respondent could select multiple preference assessment methods.

among colleagues and take steps, as necessary, to educate others about the low costs (i.e., time, money) and likely benefits of individualizing reinforcement programs based on SPAs.

Type of Preference Assessment Methodology Utilized

Data for respondents' use of SPA procedures are summarized in Tables 4 and 5. Respondents were asked to indicate the methods they use to assess preferences of clients. Four of the options were considered indirect forms of assessment (informal observations, asking adults with knowledge of the student or client, asking the student or client directly, or conducting a parent/caregiver survey) and seven options were considered direct assessments (assessments using direct observation and measurement of approach responses or engagement with

Table 6. Frequency of Conducting Full-scale* and Mini Preference Assessments** by Certification Status

Frequency	Percentage of Responses			
	BCBA: Full-scale preference assessment	Non-BCBA: Full-scale preference assessment	BCBA: Mini-preference assessment	Non-BCBA: Mini-preference assessment
Hourly	0	0	23.0	8.6
Several times a day	2.9	1.5	29.0	19.3
Once a day	3.8	1.0	9.0	1.0
Several times a week	2.9	2.6	7.0	5.6
Once a week	4.6	1.0	7.0	4.1
More than once a month	12.5	8.2	10.0	4.1
Once a month	18.3	4.1	2.0	4.6
Less than once a month	44.2	24.0	9.0	9.6
Never	10.6	57.7	4.0	43.1

* Full-scale preference assessments were defined as using multiple stimuli and presenting items on repeated trials in one sitting

** Mini preference assessments were defined as offering a choice between two or more items immediately before a teaching session.

contingent access to selected stimuli, as described in peer-reviewed journals). Indirect techniques were the most common methods endorsed by respondents, independent of other factors (e.g., behavior analysis certification status, where respondents worked, the discipline in which the respondents received their highest degree, and whether they also used direct assessments).

Respondents who reported using direct SPAs used a variety of methods. The most commonly used SPA was the PS assessment (used by 36% of respondents), followed by the multiple-stimulus assessment with replacement (23%), and the pictorial PS assessment (23%). The SPA that was least likely to be used was the multiple-stimulus without replacement assessment (10%).

The majority of behavior analysts who participated in the survey reported using at least one published SPA procedure (89%). Individuals with training in disciplines other than behavior analysis (e.g., psychology, education) and professionals who were not certified in behavior analysis were much less likely to conduct direct preference assessments (34%), and were more likely to rely exclusively on indirect assessment methods such as parent or caregiver interviews. The PS assessment was used by 70% of certified behavior analysts, compared to 19% of noncertified respondents. Seventy-seven percent of respondents with

a degree in behavior analysis reported using the PS assessment compared to approximately 35% of individuals with a degree in psychology and less than 20% of individuals with a degree in special education. The reported use of direct SPA procedures was correlated with work setting (the highest use was reported in nonpublic school settings).

Frequency of Preference Assessments

Data on reported frequency of preference assessments are summarized in Tables 6 and 7. Respondents were asked how often they conducted full-scale preference assessments (defined as using multiple stimuli and presenting items on repeated trials in one sitting). The most commonly selected answer across all respondents was, "less than once a month." It is difficult to know how often SPAs should be conducted for any given individual, since several studies have demonstrated that the long-term stability of preferences for both edibles and activities is idiosyncratic across participants (e.g., Carr, Nicolson, & Higbee, 2000; Zhou, Iwata, Goff, & Shore, 2001). Unfortunately, 42% of all respondents indicated that they *never* conducted full-scale preference assessments. Although this finding does not preclude the possibility that practitioners are incorporating client choice through less formalized methods, these data do suggest

| | Percentage of Responses | | | | | |
| | Full Scale SPA | | | Mini SPA | | |
Frequency	Behavior Analysis	Psychology	Special Education	Behavior Analysis	Psychology	Special Education
Hourly	0	0	0	25.0	7.4	12.5
Several times a day	0	1.6	0	23.7	35.2	24.3
Once a day	2.7	1.6	2.0	7.9	1.9	2.8
Several times a week	4.0	0	3.0	7.9	5.6	3.8
Once a week	6.7	1.6	1.0	7.9	0	5.6
More than once a month	13.3	8.2	7.0	13.2	5.6	6.5
Once a month	20.0	21.3	4.0	3.9	5.6	4.7
Less than once a month	44.0	45.9	30.0	6.6	20.4	9.3
Never	9.3	19.7	53.0	3.9	18.5	30.8

* Full-scale preference assessments were defined as using multiple stimuli and presenting items on repeated trials in one sitting.

** Mini preference assessments were defined as offering a choice between two or more items immediately before a teaching session.

the need for more staff oversight and support with respect to reinforcer identification.

The most reliable difference in reported frequency of assessments across respondents was related to certification in behavior analysis. Only 11% of certified behavior analysts indicated they never conduct full-scale preference assessments, compared to 58% of nonbehavior analysts. Individuals working in public schools were more likely to report that full-scale SPAs were never conducted (48%) compared to professionals working in other settings (31%). Over 50% of respondents with a special education degree never conducted full-scale SPAs, compared to 20% of respondents with a degree in psychology and 9% of respondents with a degree in behavior analysis.

Individuals working in public schools may be less likely to use SPAs for several reasons. First, public school employees were less likely to receive training on how to conduct SPAs. Although the BACB does not publish employment statistics for certificants, it is possible that public schools employ relatively

few behavior analysts who could provide SPA training. Public schools may also send educators to fewer outside behavior-analytic workshops and conferences than private programs. One piece of supporting evidence for this speculation is that only 17 of the 373 email addresses from individuals who attended a recent behavior analysis conference were educators or special educators working in public schools. Second, 7 of 90 individuals working in public schools who were familiar with the term "stimulus preference assessment" commented that teachers and school administrators are biased against conducting SPAs. For example, one individual cited a "lack of staff 'buy-in' to using reinforcers for individual students, thus causing them to not take the SPA seriously." Another respondent wrote that SPAs were "simply not important to the top brass." One self-identified behavior analyst working in a public school cited a "lack of support from teaching staff and administration in utilizing [SPA] technologies." Another respondent commented that some teachers "have the attitude that they know what the

child wants to work for, and that preference assessments are unnecessary."

If staff or administrators are resistant to the use of preference assessments, additional strategies may be needed to facilitate the transfer of behavior-analytic technology into some settings. For example, efforts to increase the use of SPAs in public schools might begin with behavior analysts identifying what teachers and administrators value about the assessment or teaching methodologies they have adopted in the past. Next, practicing behavior analysts could use this information about organizational priorities and preferences to inform conversations with decision makers about SPAs.

Respondents were also asked how often they conducted "mini-preference assessments" (defined as offering a choice between two or more items immediately before a teaching session). Although over 40% of respondents indicated that they provide choices at least once a day, nearly 30% of respondents indicated they never offer choices to clients or students. Although this number may be inflated by an unknown proportion of administrators or staff trainers who could have participated in the survey, the implications are concerning. Individuals with certification in behavior analysis were more likely to provide choices than noncertified respondents. Four percent of certified respondents reported they never offer choices, compared to 43% of professionals who were not certified behavior analysts. Board Certified Behavior Analysts were the most likely to report providing frequent choices. Twenty-five percent of behavior analysts provided choices hourly compared to 7% of individuals with a degree in psychology and 12% of individuals with a degree in special education. Special educators were most likely to indicate that they never provided choices (31%).

Barriers to Conducting SPAs

Sixty percent of all respondents (and 81% of certified behavior analysts) cited lack of time to complete assessments as a barrier to using SPAs. It is not clear why behavior analysts cited lack of time as a barrier to conducting SPAs more than respondents in other professions. One reason may be that "No Barriers" was not a response option on the survey (i.e., even professionals with a background in behavior analysis were required to nominate one barrier). A second possible explanation is that behavior analysts have more training in SPAs and, therefore, more intimate knowledge of the time required for completing one.

Although the most significant barrier to SPAs reported by behavior analysts was lack of time, recent studies have demonstrated the validity of brief SPAs (e.g., Carr et al., 2000; Roane, Vollmer, Ringdahl, & Marcus, 1998) and time-efficient methods for detecting changes in client preference over time (i.e., conducting a combination of periodic full-scale SPAs and presession, brief SPAs; DeLeon et al., 2001). Practicing behavior analysts who are not already comfortable implementing brief SPAs such as free-operant and reduced-array multiple-stimulus methods should seek additional reading or training and develop an SPA protocol that suits the needs of their clients and

their organization (see Karsten, Carr, & Lepper, 2011, for one algorithm for selecting among the available SPA methods).

Another top-endorsed barrier was lack of knowledge of SPA procedures, cited by 50% of all respondents. Although certified behavior analysts and individuals who had a degree in behavior analysis were the least likely subgroup of respondents to endorse lack of knowledge as an impediment to conducting SPAs, a surprising number (approximately 20%) did cite lack of information as a barrier. Two-thirds of respondents who were not certified in behavior analysis indicated a lack of knowledge of SPA procedures was problematic, as did 43% of respondents with a degree in psychology and 47% of respondents with a degree in special education.

Conclusion and Recommendations for Practitioners

Over the past 25 years, behavior analysts have developed a variety of methods to identify reinforcers for individuals with developmental disabilities. Findings from previous surveys (e.g., Love, Carr, Almason, & Petursdottir, 2009), like results from this study, suggest that many behavior analysts conduct preference assessments with their clients. While these data are encouraging, several other findings of the current study indicate that practitioners and trainers of behavior analysts still have important opportunities to disseminate and adopt more efficient and consistent use of SPAs. Given the potential benefits of conducting SPAs, and the likely underuse of these procedures in some applied settings, new methods must be developed to train nonbehavior analysts to implement SPAs in ways that are easy (e.g., training does not require direct services of an individual with expertise in conducting SPAs), cost-effective, and portable (e.g., Graff & Karsten, 2012). Unfortunately, if professionals do not see the importance of even the simplest methods of preference assessment (e.g., offering a choice of reinforcers immediately before teaching), more information and training may be insufficient to increase SPA usage.

The current study has some noteworthy limitations. First, a random sample of educators, practitioners, and behavior analysts was not obtained. The sample relied heavily on respondents who lived in Massachusetts. Thus, it is unclear if these findings would generalize to professionals who reside in other regions. In the future, it may be helpful to identify the extent to which SPA awareness and practices are similar across various states or regions. Results of the present survey are more likely to overestimate than to underestimate awareness and use of SPAs based on the fact that Massachusetts has the highest number of Board Certified Behavior Analysts per capita compared to other states (Behavior Analyst Certification Board, 2011). Future researchers might also conduct a survey examining the extent to which topics of preference, choice, and reinforcement are reviewed in the educational training of professionals working with individuals with special needs, most notably, special educators.

Another limitation of our study was that individuals with no previous knowledge of SPA procedures still reported the specific types of SPAs they had conducted (e.g., multiple stimulus

assessments, pictorial preference assessments). If respondents were unclear about what these assessments entailed, they may have responded inaccurately. Thus, it is unknown whether results for some questions might overestimate or underestimate actual SPA usage.

Over the past 25 years, our ability to quickly identify items that can be used to teach new skills and decrease problem behavior has improved with the advent of SPAs. The identification and use of individualized reinforcement play a key role in effective teaching; thus, professionals both inside and outside the field of behavior analysis may better serve their students and clients through frequent and direct methods of SPA.

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